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ABSTRACT

New miscue analysis, which combines characteristics of cloze procedure with traditional miscue analysis, seems to overcome some of the limitations encountered in the traditional method. In new miscue analysis, subjects read selections below and at their level of reading ability and are not agitated by being asked to read material that is too difficult. The technique also offers a means of discriminating at all points along the reading ability continuum, from young to adult readers. Preliminary research on new miscue analysis shows that it generates more responses for analysis per number of words read than does miscue analysis. By retaining all the features of miscue analysis, the new technique provides a similar "window on the reading process" as before--that is, it still provides classroom teachers with qualitatively useful information--while offering a means of calculating an index of reading progress. (RL)

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New miscue analysis: a tool for comprehending reading

Jonathan Anderson

> The soul of wit may become the very body of untruth. However elegant and memorable, brevity can never, in the nature of things, do justice to all the facts of a complex situation.
>
> Aldous Huxley

To call the subject of this article new miscue analysis seems a little pretentious, yet it has something to offer to miscue analysis. To claim further that here is a tool for comprehending reading is really to reinforce the contribution that miscue analysis has provided to our understanding of the reading process.

The starting point for new miscue analysis is naturally enough miscue analysis. Goodman (1973a: 7-8) states that in all miscue analyses, the essential procedures are the following:

1. Choose an appropriate selection for reading.
2. Prepare the material for taping.
3. Record the oral reading and note all miscues.
4. The subject retells the story.
5. Code all miscues.
6. Study the patterns of miscues.

An examination of this six-stage procedure, which Burke (1973: 6) agrees is the "heart of the process", suggests certain lines of departure.

Choosing an appropriate selection

The first step, to choose an appropriate selection for subjects to read, is easier said than done. Burke (1973: 26) herself says that "most of our notions concerning complexity and readability are so vague as to leave us helpless when examining a piece of reading material". And yet in choosing an appropriate selection we must make a judgment about passage complexity and readability despite these vague notions. But since reading involves the interactions of reader and text, we must also make a judgment about reading ability. Our notions of reading ability are just as vague. Having made judgments about reading ability and text difficulty, we are required finally to estimate the likely success a reader will have in reading the text aloud.

Perhaps with trial and error experienced teachers can do this but a further requirement is that the selection be difficult enough to generate a sufficient number of miscues. Y. Goodman and Burke (1972: 20) offer this advice to teachers:

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> The teacher should be quick to change selections if too few miscues are being made. A selection must generate a minimum of twenty-five miscues in order to be used. Under no circumstances is the reading to be stopped only because the student makes a large number of miscues. If the reader becomes extremely agitated - squirms uncomfortably in his chair, breathes heavily while reading, repeatedly asks to stop, mumbles unintelligibly as he reads, fails to respond to assurances from the teacher - then the selection should be changed.

One cannot help but wonder if, after all this, any change of selection would produce reading behaviour that could be relied upon - or, in fact, would produce any reading behaviour at all.

The real problem about a selection that is overly difficult, however, is that it can change a reader's behaviour, both quantitatively and qualitatively. Research by Kibby (1979: 395), for example, found that "the difficulty of a reading passage has a significant effect on the reading strategies a reader uses", changing the pattern of miscues. This is analogous to the ceiling effect in testing when items which are too difficult fail to discriminate between subjects.

Goodman and his co-workers also generally suggest choosing a single selection on the grounds of a need for continuity of theme. Notwithstanding this, there would seem value in including varieties of writing styles, narrative and expository.

A further observation is that once readers have gained a certain reading proficiency, although they continue to make miscues, these tend to be relatively few in number and often of a minor kind, even when material is well beyond their normal comprehension level. The technique ceases to discriminate effectively, not unlike the familiar basal effect with tests containing very easy items.

These observations suggest that problems in choosing a selection for miscue analysis may, and often do, arise as a result of:

- estimating text difficulty
- estimating reading ability
- knowing in advance if there will be sufficient miscues
- ceiling effects (with difficult text)
- basal effects (with proficient readers)
- limited sample of text type

Preparation and recording of oral reading

The second and third steps in Goodman's procedure involve preparing the text for taping and recording the reader's miscues as the text is read aloud. Miscues occur when observed responses fail to match expected responses. Analysis of these mismatches allows the teacher/researcher to see beyond the behaviour, to the reader's text-processing strategies and, in Goodman's (1973a: 5) words, this provides "a window on the reading process". The assumption made is that the text-processing strategies employed in reading aloud are similar to those in regular (i.e., silent) reading.

It would be reassuring if evidence were available that what readers do when reading aloud is in fact similar to what they do in silent reading. A suggestion as to how this evidence might be gathered using new miscue analysis is offered below.

Retelling the story

The fourth step requires the reader to retell the story (notice of which is given in the initial instructions). A rather important question is whether this particular constraint, which Goodman and his co-workers place on readers, affects the strategies which readers use and hence the miscues they make.

One researcher to investigate this question asked whether a different purpose, such as answering questions, would produce different kinds of miscues during oral reading compared with those produced when the set is to retell the story. It was concluded (Ryan, 1979) that, as far as these two purposes are concerned, there was no significant change in the quality of miscues produced.

Coding and analysis of miscues

The fifth and sixth steps involve the coding and analysis of miscues. Use of the Goodman taxonomy (Goodman 1969) or the Reading Miscue Inventory (Y. Goodman and Burke 1972) provides a comprehensive framework for coding oral reading errors.

With regard to the analysis of miscues, Goodman (1973a: 13) notes that a problem perceived by teachers is to judge "how much progress pupils are making toward reading efficiency". Goodman does not see this as a major problem for he comments that, in the same way that we can judge progress in oral language according to whether young children can make themselves understood and can understand others, so "reading also should be judged by the extent to which learners can understand an increasing range of written materials" (p. 14). Most teachers, however, would find this response rather too broad to be particularly helpful.

For those who wish to assess reading efficiency, what is needed is a quantitative estimate of reading progress which at the same time retains the advantages of qualitative miscue analysis.

Initial modifications

What follows is a series of trials towards modifying some of the procedures in miscue analysis to overcome the different limitations that have been alluded to above. These trials ought not to be considered formal experiments. They represent preliminary thinking and perhaps suggest directions that might merit further exploration.

In the first series of modifications an attempt was made to present passages of sufficient difficulty to readers, in order to generate miscues for subsequent analysis. The strategy of Goodman and his co-workers, it is recalled, is to select passages that are above the level of difficulty that readers can handle easily, even if this causes a certain level of frustration. Effectively, such a strategy involves the selection of passages with perhaps more difficult concepts, longer and more complex sentences, more difficult vocabulary, and so on. As an alternative to raising the difficulty of the passage overall, the trial involved making reading more difficult in other ways.

Elsewhere (Anderson 1979) the procedure is described wherein a modified form of cloze procedure was adopted. Briefly, a series of passages, not specially selected in any way, had words deleted at regular intervals, with deletions indicated by blank lines of the same length as the words omitted. Subjects were then asked to read the passages aloud and miscues were recorded in the usual manner. For the trial adult subjects were used since the purpose was to find a procedure that would work with proficient readers.

Readers were invited to read each passage and "think aloud": all responses were recorded. The partial extract in Table 1 shows the observed responses of one fluent reader. It is noted that this reader made one substitution and one reversal and for some of the blanks indicated more than one possibility.

Short though this passage is, several miscues were made. If the attempts to replace the words deleted are also included as part of the analysis, shorter length passages may be used and this allows for the provision of a variety of writing styles and difficulty levels.

It might be argued that the technique of deleting words changes the nature of the task but then cloze procedure is now widely accepted as a measure of reading comprehension. It seems too that the use of passages that are above subjects' reading level affects the strategies that readers use (see the study by Kibby (1979) referred to above).

As part of the trial, very easy passages were also tested on the adult readers. Consider the following excerpt from one of the passages (which adopted a one in seven deletion rate):

Text	Word deleted
But the old tiger is very _____.	cunning
It does not come back to ___ same place.	the

The pattern of responses of 30 fluent readers was as follows:

1st blank	f	2nd blank	f
clever	25	the	30
wise	3		
cunning	2		

Table 1: Extract of text with expected and observed responses for one fluent reader.

Text	Word deleted
Goodman's paper is written 2 briefly / 1 well	compactly
but and he makes one statement	statement
that requires some elaboration, or	or
at least debate. His 2 hypothesis / 1 theory	remark
that printed English must be	be
scanned from left to right	right
holds for only the 2 exercise of / 1 task of	simplest
reading.	

This is an interesting example. The responses to the second blank exhibit no disagreement among any of the readers. In the first blank, however, the consensus among the 30 fluent readers is that clever fits rather better than the author's choice, cunning. Here is interaction at work between author and reader, as described by Y. Goodman and Burke (1972: 13). A few readers though read cunning and a few others, wise.

How to analyse responses to blanks in terms of miscue analysis is not addressed here. It may be noted though that in the last example, clever, cunning and wise are each both semantically and syntactically acceptable. (It does not make sense to consider also graphic and sound similarity.) But whether clever, for example, should be considered a miscue for cunning on the grounds that the latter was chosen by the author, or whether cunning should be regarded as the miscue, since most of the fluent readers agreed clever fitted best, is an interesting question.

A potential problem that the trial showed up (though not evident in the short examples given above) is that some blanks proved easy to replace in the sense of general agreement among subjects, while with other blanks there were sometimes as many different responses as there were subjects. This may be a problem if more-difficult-to-replace blanks tend to interrupt readers' flow; and hence the argument that this is no longer uninterrupted reading, as in the usual miscue analysis, takes on more force. (In passing one might note though that writers frequently pause and ponder over their choice of words yet, despite this, no one would dispute that the end-result is not still writing.) Nevertheless, to alleviate this potential problem a second trialling was commenced.

Further modifications

In the second trial a series of passages were selected in which the words selected for deletion were highly redundant for proficient readers. The passages were from the Gapadol Reading Comprehension test (McLeod and Anderson 1972). During the development of this test every word from each passage had been systematically deleted and administered to random groups of proficient readers to replace. Resulting analysis enabled the redundancy of every word in context to be calculated. These redundancy estimates ranged from zero (when each proficient reader had made a replacement with a different word) to 100 per cent (where there was unanimous agreement). The words finally deleted in the Gapadol test are those that are maximally redundant for proficient readers. Part of the underlying rationale of the test is that the test gauges the extent to which readers approximate to efficient channels of communication (i.e., to efficient users of language).

The Gapadol test is made up of two forms, each consisting of a series of self-contained passages of about 130-150 words, arranged in increasing order of difficulty, and designed for use with 7 to 16 year-olds.

In a very limited trial the passages comprising the test were administered to just two subjects, one a ten-year-old girl and the other a twelve-year-old boy. Both were thought to be reasonably competent readers. Using a counter-balanced design each subject completed one form as silent reading, with the 30-minute time-limit as designed, and the other form as oral reading; a week later the two forms were re-administered in reverse order, that is with one as a silent reading task and the other as oral reading. The two subjects also completed the forms in the reverse order to each other.

Part of the purpose of the trial was to compare responses when reading was done as a silent activity and when the passages were read aloud. In the former case the data consisted of the written responses for each word deleted; in the latter case the taped transcripts were available for the reading of each whole passage. For comparison purposes only responses where words had been deleted were analysed. This provided some 164 points of comparison over the two forms, which together contained about 1600-1700 words.

Table 2 details the instances, for the 12-year-old subject, when oral and written response differed, together with the grammatical and semantic acceptability of both sets of responses. The points to note are that in only 16 of the 164 comparison points are there differences between oral and written response; in only 3 of these 16 differences are the responses not

Table 2: Responses on an oral and silent reading comprehension test, rated for grammatical acceptability (G.A.) and semantic acceptability (S.A.).

No.	Oral Reading	G.A.	S.A.	Silent Reading	G.A.	S.A.
1	face	Y	Y	body	Y	Y
2	full	N	Y	fully	Y	Y
3	stew	Y	Y	soup	Y	Y
4	thousands	Y	Y	hundreds	Y	Y
5	turtle	Y	Y	their	Y	Y
6	along	Y	P	on	Y	Y
7	leadership	Y	Y	equipment	Y	N
8	gave	Y	Y	issued	Y	Y
9	with	Y	Y	only	N	N
10	but	Y	Y	except	Y	Y
11	find	Y	Y	discover	Y	Y
12	-	-	-	waste	Y	Y
13	but	P	P	although	P	P
14	adequate	P	P	alright	P	P
15	fairly	Y	Y	them	Y	Y
16	melts	Y	Y	fades	Y	Y

Y = yes

N = no

P = partially

- = omitted

grammatically acceptable, in either the oral or written mode; and in only 4 of the 16 differences are the responses not semantically acceptable. Certainly, for this subject, the evidence is fairly compelling that the reading strategies, in so far as they can be observed, are virtually the same in oral and silent reading.

In the case of the 10 year-old, there were 44 instances where oral and written response differed but, as with the 12 year-old subject, the differences that might be inferred between the strategies employed in oral as against silent reading, appear very slight.

The rather interesting observation about the oral reading of both subjects is that the deletions caused no observable impediment to reading. This was certainly the case with the easier passages. Both subjects read the passages as fluently as if the omitted words had been present. As passages increased in difficulty, there were minor pauses at some of the blanks; but then there were minor pauses at some of the printed words too.

What can be concluded from observations made during these modifications to the usual way of administering a miscue study? Of course any conclusions must be relatively tentative until further on-going studies are completed. Some pointers, however, suggest directions that may be fruitfully followed.

1. The use of a series of graded passages is one ready way of ensuring the reader is faced with appropriate reading material.
2. The deletion of highly redundant words, which the reader attempts to replace as the passages are read aloud provides additional data for analysis. The task involves sampling, predicting, testing and confirming - all strategies essential to reading (Goodman, 1973b: 23).
3. The use of reading passages, prepared as described, offers a procedure that discriminates effectively with mature and fluent readers. This is achieved without requiring subjects to read passages that are too difficult.
4. Some evidence is presented which suggests that the strategies involved in reading aloud are similar to those involved in regular reading.
5. The modifications described still permit qualitative analysis deriving from usual miscue analysis.

Charting a reader's progress

What new miscue analysis can provide too is a quantitative estimate of reading progress. To illustrate how this might be done, we return to the short sample passage quoted above

But the old tiger is very _____.
It does not come back to ___
some place

It will be recalled that, when this extract was administered to 30 fluent adult readers, 25 read the first missing word as clever, 3 as wise, and 2 as cunning. For the second missing word, all 30 readers read ... back to the same place. Let us assume that this kind of information is available for all deletions in our series of graded passages.

In new miscue analysis we now ask another reader to read the passages aloud. We tape all responses and record miscues in the usual way. To estimate reading progress, we examine just the replaced words and we compare the individual reader's responses with the pattern of responses obtained from the group of fluent readers.

By means of techniques described in greater detail elsewhere (Anderson, 1976), we can gauge the degree to which the individual reader approximates to the group of fluent readers. To give a flavour of how this is done, it would seem obvious that if the individual reader responded with clever and the to the two items, he is closer along the path to becoming a fluent reader than if he responded with good and the and closer along still than if he had responded with old and very.

Conclusion

To sum up new miscue analysis is presented as a means of overcoming some of the limitations encountered in miscue analysis. Subjects read selections below and at their level of reading ability and are not agitated by being asked to read too difficult material. The technique offers a means of discriminating at all points along the reading ability continuum, from young to adult readers. The technique also generates more responses for analysis per number of words read than miscue analysis. By retaining all the features of miscue analysis, the new technique provides a similar "window on the reading process" as previously - that is, it still provides classroom teachers with qualitatively useful information. As well, for those who wish it, there is a means of calculating an index of reading progress.

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